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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,699

02/20/2004

Hiroyuki Eguchi

042115

3673

38834

7590

06/16/2006

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EXAMINER

HAN, YOUNGHUIE JESSICA

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/781,699

Applicant(s)

EGUCHI ET AL.

Examiner

Y. J. Han

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/15/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al (2003/0198064 A1) in view of Wischnewski (6,979,934) and Weil (3,893,015).

Zhu et al (2003/0198064 A1) discloses the invention substantially as disclosed including a two-way DC-DC converter having a terminal for a low-voltage side (42); a terminal for a high-voltage side (50); a transformer (26) including a winding wire for the low-voltage side (T) and a winding wire for the high-voltage side (T); a switching section (S1-S4, bridged) for the low-voltage side inserted between the terminal for the low-voltage side and the winding wire for the low-voltage side; a switching section (S5, S7, D6, D8) for the high-voltage side inserted between

the terminal for the high-voltage side and the winding wire for the high-voltage side; a rectifying element (see Fig. 3, diodes are connected in parallel with the switches) for the low-voltage side connected in parallel with switching elements in the switching section for the low-voltage side; a rectifying element (see Fig. 3) for the high-voltage side connected in parallel with switching elements in the switching section for the high-voltage side; and a control circuit (300) which controls switching elements in the switching section for the low-voltage side and switching elements in the switching section for the high-voltage side, which causes the current flowing on the winding of the low and high voltage sides to have sinusoidal waveforms. Zhu et al, however, does not disclose an LC resonant circuit provided between the winding wire for the high-voltage side and the switching section for the higher voltage side. Wischnewskiy (6,344,985) teaches that an LC resonant circuit (57) may be provided between the winding wire for the high-voltage side and the switching section for the higher voltage side. See Fig. 12. Also the voltage U_e present at the secondary winding of the summing transformer has a sinusoidal variation. Weir (3,893,015) discloses that the use of an LC resonant circuit for generating currents with sinusoidal waveforms across both windings is well known in the art. Its LC circuits comprising inductors 16 and 18 and capacitors 24 and 25 provide sinusoidal waveform across capacitor 25 is fed to the primary winding of the transformer 31 and inherently to the secondary winding while providing stable operation from zero to full load. See column 6, lines 35-68. Thus, it would have been obvious to one having ordinary skill in the art to employ an LC resonant circuit of Wischnewskiy and Weir in the converter of Zhu et al to obtain the claimed invention, for the purpose of decreasing transformer leakage inductance and to decrease switching losses while providing stable operation.

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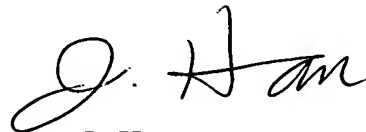
Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J. Han', is positioned above the printed name and title.

J. Han
Primary Examiner
Art Unit 2838